
CIRM Bridges to Stem Cell Research and Therapy

Grant Award Details

CIRM Bridges to Stem Cell Research and Therapy

Grant Type: Bridges

Grant Number: EDUC2-12738

Project Objective: This training program culminates in a biotechnology certificate with a stem cell/regenerative medicine emphasis. 5-10 undergraduate students receive coursework in genetics, immunology, mammalian cell culture and scientific literature and complete at 10-month paid internships in Bay Area host labs. Techniques Course is provided by UCSF, and patient engagement activities are organized by Americans for Cures.

Investigator:

Name: Barbara Des Rochers

Institution: Berkeley City College

Type: PI

Award Value: \$2,806,896

Status: Active

Grant Application Details

Application Title: CIRM Bridges to Stem Cell Research and Therapy

Public Abstract:

The CIRM program in stem cell research and therapy will prepare students, including many from underrepresented and underserved communities, for jobs and careers in biology and biotechnology. The numbers of industries and laboratories centered in production and research on stem cells and gene therapies has steadily risen in California over the past few years as new and innovative therapies are in demand. To meet the needs of this industry and the research labs that support it, there will be a greater need for highly trained technicians. Also, there will be a need for more scientists and entrepreneurs to develop the therapies of the future. Students who have the opportunity to work in laboratories early in their careers are inspired to continue their education, a few earning advanced degrees who will enter the workforce as scientists and entrepreneurs and contribute directly to future endeavors in this arena.

This program provides hands-on laboratory experience as well as academic instruction, and affords students a solid foundation for future studies and employment opportunities. Laboratories willing to host student interns are engaged in a range of endeavors from basic research into the origins of disease to the generation of gene therapies. Among opportunities afforded by this internship, students will receive world class training in working with stem cells and advanced technologies. As part of their training, interns will attend symposia pertinent to their research interests along with seminars that address ethical and legal issues associated with medical advances. Interns will learn how pharmaceuticals are created, developed and regulated and thus be capable of understanding the challenges of developing new therapies. In the course of a 10-month internship, students will work alongside top scientists and technicians honing their laboratory skills and developing critical thinking skills and confidence in their ability to work in today's world of biological science, which can be daunting when viewed from the outside.

Interns also will hear from patients and their families what it is like to struggle daily with debilitating conditions such as Alzheimer's, Parkinson's and chronic myeloid leukemia. Witnessing personal stories and connecting with patients with genetic-based conditions will deepen the appreciation for translational research and therapies. CIRM interns will be invited as guest lecturers in biology and biotechnology classes offered at their own and other local colleges, high schools, community centers and health clinics. Participation in outreach will allow interns to share their experiences and inspire and educate not only other students, but members of the community in the new and exciting fields of medical research and innovative gene-based therapies.

Statement of Benefit to California:

Developing and maintaining leadership in the field of stem cell research and gene therapies requires a critical mass of exceptional scientists, adequate resources, laboratories equipped with the latest specialized technology required for stem cell research, and a large pool of laboratory technicians trained in handling cell and stem cell research techniques. The proposed CIRM Bridges program in Stem Cell Research and Therapy will benefit the State of California by providing skilled technicians to work in the field of gene therapy and stem cell biology. Due to the cost of equipment and materials, much of the required training in this field is not available in 4-year and community colleges, so the inclusion of on-site internships as part of the training program is critical. The proposed program will ensure that students not only gain the technical skills needed to meet the needs of the workplace, but also acquire an understanding of the challenges faced by patients diagnosed with genetic-based and degenerative conditions. Students also will be exposed to the legal, ethical, and social issues surrounding stem cell research and gene-based therapies and will be encouraged to participate in outreach activities in their communities. Importantly, this proposal will encourage and prepare students from non-traditional and underrepresented backgrounds to participate in the program and to consider careers in industry and research laboratories dedicated to understanding the origins of genetic-based conditions and the use of gene-based therapies to resolve them.